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CRITICISM OF THE DEPARTMENT OF TECHNICAL SCIENCES, ACADEMY OF SCIENCES USSR

During the postwar Five-Year Plan, the network of scientific research institutions has increased by 150 percent over the prewar level and the number of workers in scientific research institutions has almost doubled. The Academy of Sciences USSR and the republic academies of sciences have been transformed into the largest group of scientific institutions in the world, with well-equipped institutes, laboratories, observatories, and stations. The government spends enormous sums on the development of science and the training of new personnel. More than 360 higher educational institutions were reconstructed or opened in the postwar years.

The majority of the scientific research organizations and higher technical schools and most Soviet scientists and research workers plan their activity with consideration for the most pressing problems of industry, construction, and other branches of the economy. However, some scientific institutions are not participating in the development of the priority problems connected with the construction of the giant hydroelectric stations and canals, with the construction of new machines, mechanisms, and automatic regulation equipment, and with better organization of construction and assembly work, etc. Some scientific research institutes and laboratories are detached from practice and waste their money and energies on unimportant subjects.

Some technical schools graduate young engineers with insufficient knowledge of modern engineering. These engineers are lost when they encounter new equipment, machines, control systems, materials, and measuring instruments. The laboratories of a number of institutes, as well as textbooks in some fields, do not satisfy the requirements of modern engineering. Some scientific research institutions which plan their activities correctly as a whole permit the wasting of money and energy on abstract subjects in isolated laboratories or in some parts of the plan. It is no secret that there are also scientific workers who, year after year, work aimlessly on the "development" of problems which have long since been solved by science and practice.

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The activity of the Department of Technical Sciences and some institutes of this department was recently criticized severely and justifiably in the central party organ (the Pravda articles "Solidify the Union of Scientists and Production Workers," 17 September 1951, and "The Soviet Scientist," 6 October 1951). At an expanded session, the Presidium of the Academy of Sciences USSR discussed the organization and results of the scientific work of the Department of Technical Sciences and its institutions. In a decree of 28 September it noted: serious neglect by the administration of the department and the administration of its institutes, unconcern on the part of the latter with practical requirements, remoteness of most of the subjects from practical problems of the economy, and absence in a considerable number of theoretical works of any valuable practical end. The Bureau of the Department of Technical Sciences and its directors have been unable to organize the work of the institutes of the department correctly.

The ENIN (Power Engineering Institute imeni Krzhizhanovskiy), the Institute of Automatics and Telemechanics, and other scientific research institutions of the department must in the very near future complete the reorganization of their work and eliminate all the defects noted in the Pravda articles, in the decree of the Presidium, and in the critical discussion of the activity of institutes at the expanded sessions of scientific councils conducted in October 1951.

The ENIN has completed a number of important studies, connected mainly with the initial stage of planning large hydroelectric stations. However, the entire effort of the institute has not been directed toward implementation of plans for the great construction projects. The subject plan of the institute contained quite a few unimportant problems. The ENIN has been unable to unite properly its efforts in the comprehensive development of the most urgent economic problems of high-power engineering. Work on large electric machines at the institute has been inadequate, and this has limited the institute's participation in the solution of electrical engineering problems connected with the most important branches of industry and with the projects on the Volga, Don, Dnepr, etc. The Laboratory of Electromechanics, the High-Voltage Discharge Laboratory, and some other electrical engineering laboratories of the institute have shown little interest in the problems faced in the rapidly growing Soviet power engineering field.

There are exceedingly few works in the institute which are ready for practical application in industry.

The scientific trend of research work has not been clearly defined in all sections of the institute. Some of the most important subjects in contemporary power engineering have been completely overlooked. The institute's scientific personnel includes many highly qualified and hard-working persons; however, because of inadequate leadership and incorrect organization of work, coordination of the work performed by individual laboratories has been practically nonexistent. It has even reached the point where liasion between laboratories is maintained from outside, i.e., by planning organizations which rely on the ENIN for consultation.

Criticism and self-criticism have been unsatisfactory in the ENIN, and there have been no creative discussions on basic scientific subjects. In spite the repeated instructions of the party on the major importance of extensive free discussions for the development of science, especially in a period when Soviet science is confronted with exceedingly important problems, the necessary conditions for the development of scientific criticism and self-criticism have not been established in the institute.

It is well known that all great scientists have urged that we should not hesitate to reinvestigate certain principles, even ones established by authorities, if they do not correspond to experimental or practical data or to a new

theoretical or experimental study. Free scientific discussion is the most important condition for the progress of science; conversely, the attempt to canonize any principle only because its author is an acknowledged authority leads to stagnation.

The low level of training of young scientific workers found in a number of laboratories is the fault of laboratory directors who do not pay sufficient attention to this important task (I. S. Bruk, Z. F. Chukhanov, M. B. Ravich, and others).

The so-called carry-over works have accounted for an extremely high proportion of the ENIN's work plans in recent years (they accounted for one third of all works in 1951).

The directors of the ENIN have not properly investigated the scientific work of the laboratories, having visited the latter rarely.

The Division of General Power Engineering of the ENIN (V. I. Veyts) has not been able to fulfill its assignment as a coordinating body for the various laboratories of the institute. With the exception of some successful studies on power engineering constructions used by planning organizations, the division has not concentrated to the required degree on the many other important problems of power engineering construction. At the same time, the plan of the division still includes relatively unimportant subjects which relate only indirectly to the great construction projects.

The Laboratory of Electric Systems (I. S. Bruk) has not paid sufficient attention to work on automatization of systems and relay protection. The study of longitudinal compensation in transmission lines has been prolonged, and the work in stability problems has been narrow in scope. The qualitative progress made during the last few years in our power systems (increase of stability, introduction of automatic repeated reclosing, automatic reduction of load according to frequency, relay protection, automatic regulation of field excitation, etc.) has been based on work performed by the scientific research personnel of the power systems and of the Ministry of Electric Power Stations, with only slight participation by the ENIN laboratories.

The institute's failure to generalize the rich operating experience of large electric power stations and power systems of the USSR is quite inadmissible. The ENIN's plan does not contain this subject, although the value of studying this experience is evident and the results of such a study would be of practical interest for the country's power engineering institutions.

Problems of automatization and telemechanization of modern power systems are not being handled properly by the IAT (Institute of Automatics and Telemechanics), Academy of Sciences USSR. As a result, the institute is not prepared to solve the complex practical problems arising in connection with the great hydroelectric power projects. Nothing less than underestimation of the importance of this work can explain the institute's attempt to assign it to its affiliate.

The IAT has not encouraged reasearch work on automatization of communications and railroad transport. Neither has it shown the proper initiative in the field of regulator construction.

The special subjects and scattered works of the IAT in the field of telemechanics have left the major problems in the telemechanization of the country's economy essentially untouched. Many theoretical research projects of the institute have not found practical application and have lacked a tangible purpose.

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The scientific trend of the work of the divisional laboratories has not been sufficiently clear. The organization of the Division of Automatic Electric Drive is not well defined. The same may be said with regard to the Division of Complex Automatic Process Control.

The institute has not maintained the proper checks to see that each scientific worker fulfills the task assigned him. Important Soviet scientists have been drawn into the work of the institute, but their work has been poorly organized. As a result, the contribution of these scientists to the institute has been considerably less than should have been expected or required of them. Because of the unsatisfactory attitude of B. Ye. Teleshevskiy, Candidate of Technical Sciences, to the matter entrusted to him, the fulfillment of the task in the assigned time was hampered. The dismissal of Teleshevskiy from the institute should serve as a serious warning of the responsibility of scientific workers for successful and timely fulfillment of the duties assigned to them.

On the basis of the discussion of the IAT's activity, a decision was taken to review the 1952 work plan, to intensify the experimental-production base of the institute, etc.

At a session of the Scientific Council of the Section on the Scientific Development of Problems of Electric Welding and Electric Heating, Department of Technical Sciences, Academy of Sciences USSR, held jointly with the Scientific and Technical Society of Welders in October 1951, the content of scientific-research work being conducted in the fields of electric welding and electric heating was investigated. and resolutions were adopted to bring the subject matter of the section in closer agreement with the needs of industry, transportation, and, especially, the construction of the large hydroelectric stations.

The Commission on Illuminating Engineering, Department of Technical Sciences, has agreed to give scientific and technical assistance in 1951 and 1952 to the construction of the Tsimlyanskaya, Stalingrad, and other hydroelectric stations. Members of the commission have already journeyed repeatedly to the construction areas, consulted with technical personnel, and participated in the development of the best lighting system for the construction areas.

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